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ABSTRACT

Over the last 20 years, New York State and its school districts have allocated substantial resources to the education of public primary and secondary students. During the 1999-2000 school year, school districts spent $22.3 billion more than they had in 1979-80, an increase of 240 percent. This report explores how the money was used, how budgeting practices differed across varying fiscal climates, and fiscal stress affects school districts. Dominant trends in budgeting patterns over the last 21 years show that a substantial portion of the increased spending has been absorbed by the effects of inflation on the costs of purchasing inputs and does not represent an increase in real resource acquisition. A surprising large portion of the remaining increased spending went for students designated as disabled. Students in regular classrooms received a much smaller share of the total increase in expenditures that occurred between 1980 and 2000, than was the expenditure share of this category in 1980. Per-pupil spending patterns in most districts tend to be related inversely to enrollment changes. From 1997 to 2000, large urban districts have increased expenditures at a substantially higher rate of increase than most other districts. (Contains 32 references, 8 figures, 10 tables, and a methodological appendix.) (RT)

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SCHOOL DISTRICT EXPENDITURES AND FISCAL STRESS

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Condition Report Prepared for the
Education Finance Research Consortium

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Executive Summary

Over the last 20 years, New York State and its school districts have allocated substantial resources to the education of public primary and secondary students. During the 1999-2000 school year, school districts spent $22.3 billion more than they had in 1979-80, an increase of 240 percent. Where did this money go? Was it used in the most effective ways to meet the goals of educators, parents and taxpayers? During these 20 years, most school districts experienced periods of rapid expenditure increases as well as periods of very modest increases or even expenditure reductions. How do school district budgeting practices differ across varying fiscal climates? Are some districts more affected by fiscal stress than others? How does fiscal stress affect district expenditures? In this condition report we explore these questions using detailed school district budget information for the 681 major school districts in New York State from 1980 to 2000.

In studying school district budgeting patterns in New York for the last 21 years, we have been impressed by the following dominant trends:

- A substantial portion of the increased spending has been absorbed by the effects of inflation on the costs of purchasing inputs and does not represent an increase in real resource acquisition.
- A surprisingly large portion of the remaining increased spending has gone for students designated as disabled. Students in regular classrooms received a much smaller share of the total increase in expenditures that occurred between 1980 and 2000, than was the expenditure share of this category in 1980.
- Per-pupil spending patterns in most districts tend to be related inversely to enrollment changes; i.e., when enrollments fall sharply, districts do not automatically cut spending, and so per-pupil spending rises. Similarly, when enrollments rise sharply, districts tend not to raise spending as sharply, and so per-pupil spending may actually fall (or at least rise less than in times of falling enrollment).
- Districts appear to employ discretion in their budgeting practices to smooth expenditures over time and to alter the mix of expenditures depending on fiscal circumstances.
- From 1997 to 2000, large urban districts have increased expenditures at a substantially higher rate of increase than most other districts.

I. Introduction[1]

Over the last 20 years, New York State and its school districts have allocated substantial resources to the education of public primary and secondary students. During the 1999-2000 school year, school districts spent $22.3 billion more than they had in 1979-80, an increase of 240 percent. Where did this money go? Was it used in the most effective ways to meet the goals of educators, parents, and taxpayers? During these 20 years, most school districts experienced periods of rapid expenditure increases as well as periods of very modest increases or even expenditure reductions. How do school district budgeting practices differ across varying fiscal climates? Are some districts more affected by fiscal stress than others? How does fiscal stress affect district expenditures?

Historically high and rapidly increasing educational expenditures have led some to question the priorities and efficiency of public schools. Recently, many school districts are finding it more difficult to raise revenue for budgets that regularly grow faster than the rate of inflation, especially as local economies show only modest growth. To understand the factors behind the rapid increase in school district spending, it is helpful to understand how districts allocate expenditures, how these patterns have changed and the discretionary behavior that school districts employ to cope with periods of fiscal stress. In this condition report we explore these questions using detailed school district budget information for the 681 major school districts in New York State from 1980 to 2000.

Many of these changes result from changes in the student population, but some reflect changes in educational philosophy. Others may reflect management practices. We believe that current educational policy discussions often suffer from incomplete information regarding district priorities. While not always articulated, educational policies and practices are frequently indicated by the way districts allocate expenditures. A better understanding of how school districts spend money will help focus the discussion regarding goals and priorities in public education and may have important implications for current debates within the education community. Education is more than just spending money. Leadership, organization, and

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[1] This paper builds upon our previous examinations of school district expenditures in New York State (see Lankford and Wyckoff ,1993, 1995 and 1996). Discussions concerning data and methodology are drawn from these earlier papers.

commitment are important elements of effective schools. Thus, following the dollars does not provide a complete picture of the functioning of schools. It is, however, an important component of such an analysis.

New York's large growth in school expenditures from 1980 to 2000 reflects the experience of school districts nationwide. As illustrated in Figure 1, real expenditures per pupil in New York grew at a somewhat faster pace than the national average over the 1960-1998 period.[2] This was especially true during the 1980s but reversed slightly during the late 1990s.

In studying school district budgeting patterns in New York for the last 21 years, we have been impressed by the following dominant trends:

- A substantial portion of the increased spending has been absorbed by the effects of inflation on the costs of purchasing inputs and does not represent an increase in real resource acquisition.
- A surprisingly large portion of the remaining increased spending has gone for students designated as disabled. Students in regular classrooms received a much smaller share of the total increase in expenditures that occurred between 1980 and 2000, than was the expenditure share of this category in 1980.
- Per-pupil spending patterns in most districts tend to be related inversely to enrollment changes – when enrollments fall sharply, districts do not automatically cut spending, and so per-pupil spending rises. Similarly, when enrollments rise sharply, districts tend not to raise spending as sharply, and so per-pupil spending may actually fall (or at least rise less than in times of falling enrollment).

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[2] All numbers presented in real terms are normalized to be in 2000 dollars. This adjustment was made using the state and local government purchases component of the GDP implicit price deflator. (Source (http://www.bea.doc.gov/bea/dn/nipaweb/TableViewFixed.asp#Mid). The GDP implicit price deflator for state and local government purchases reflects the cost of purchasing inputs used by state and local governments. The basket of goods measured by this deflator changes over time as the purchasing patterns of governments change. We believe that this is a more accurate measure of the costs facing school districts than the Consumer Price Index, which measures the cost of purchasing a fixed basket of *consumer* goods. The deflator is preferable because it captures goods actually purchased by governments rather than consumer goods, and because it captures how purchase patterns vary over time – it incorporates substitutions governments make due to price changes (e.g., buying oil rather than gas when relative prices change), technological changes (computers rather than adding machines), and other factors. Despite the deflator's conceptual superiority, it is very similar quantitatively to the Consumer Price Index, and the results of our analysis change only slightly if the CPI is used instead. Even the deflator falls short of the ideal: it is highly aggregated and it does not capture regional price differences. Ideally, we would have a separate price deflator for each major component of K-12 school expenditures in New York, for each region of the state, but such deflators do not exist. Nonetheless, the GDP implicit price deflator index is likely to be a good measure of the overall effects of inflation during the study period.

- Districts appear to employ discretion in their budgeting practices to smooth expenditures over time and to alter the mix of expenditures depending on fiscal circumstances.

- From 1997 to 2000, large urban districts have increased expenditures substantially more quickly than most other districts.

Given the enormous volume of data for each school district, other less striking trends can be observed. Our analysis, however, focuses on the dominant trends identified above.

Section II describes the methodology and data used in our research. Section III describes the expenditure categories we employ, the allocation of statewide increases in expenditures per pupil across these categories and expenditure changes for districts grouped by geographic region. It discusses the impact of changes in enrollment and inflation on these expenditure categories over the period. Section IV analyzes the composition of the increase in expenditures during the period of study. Section V defines "fiscal stress" and presents an analysis of how school districts across the state respond differentially to fiscal stress. Section VI, a summary of our analysis and a discussion of policy implications, concludes our report.

II. Methodology and Data

There is a growing literature on the allocation of educational expenditures in school districts through time.[3] From this literature there is an increasing realization that economic climate, educational regulations and institutions can have important - and often long lasting - effects on the manner in which school districts allocate resources. For example, Berne and Stiefel (1993) provide a very good analysis of how the mid-1970s budget reductions in New York City affected subsequent expenditure patterns. The authors found that cutbacks in 1976 and 1977 had permanent effects on the number of staff and services as well as capital and maintenance expenditures, but had no permanent effects on the salaries of teachers. Lankford and Wyckoff (1993, 1996), Rothstein and Miles (1995) and Rothstein (1997) document the growth of special education during the 1980s and into the 1990s. Each of these studies provides useful insights into school district budgeting practices. This research reexamines expenditure patterns including data from the 1990s, as New York and most other states struggle with where to find resources to support important education initiatives. How will the fiscal stress that began in 2001 affect the budgetary priorities of schools districts? To address this question we examine school district

[3] See, for example, Cooper (1992) Berne and Stiefel (1993), Lankford and Wyckoff (1993, 1995, 1996), Picus (1994), Raimondo et. al. (1994), Firestone et. al. (1995), Rothstein and Miles (1995) and Rothstein (1997).

spending from 1980 to 2000 for each of New York's school districts. This period includes the recession of 1990-91, surrounded by periods of strong economic growth. We believe examining changes in school district budgeting practices over these three periods will yield lessons to help us understand changes that are occurring now, but for which data are not yet available.

Chasing the dollars is a bit like solving a mystery – it helps to have a system to organize the clues you discover. Our "system" relies on a series of analyses. We examine nominal, real (inflation-adjusted) and real per-pupil expenditures and revenues. Next we examine the year-to-year percentage changes in real per-pupil expenditure categories. Finally, we decompose the change in total real per-pupil expenditures by expenditure category to see which categories contribute the most to overall change. We do this by comparing each category's share of the total change with the category's share of total spending at the start of the period.

The table below illustrates the way we decompose spending changes. It shows real per-pupil spending for a hypothetical region in 1980 and in 2000, along with the change in spending and the "share of the change." The table quickly shows us that teaching students with disabilities accounted for a disproportionate share of increased spending in our hypothetical region; i.e., even though this category accounted for only 5 percent of spending in 1980, the $250 increase was 25 percent of the total increase of $1,000. This "share of the change" approach quickly draws our attention to new trends, and we use it extensively in Section IV with simplified tables that show changes in spending rather than actual levels of spending. We provide the formulas used in this decomposition in the methodological appendix to this paper.

Illustration of Expenditure-Change Decomposition
Real Per-Pupil Expenditures in Hypothetical Region

	1980		2000			
	Spending	Share of Spending	Spending	Share of Spending	Change in Spending	Share of Change
Teaching-regular	$ 540	54%	$ 950	48%	$ 410	41%
Teaching-disabled	50	5%	300	15%	250	25%
All other	410	41%	750	38%	340	34%
Total expenditures	$ 1,000	100%	$ 2,000	100%	$ 1,000	100%

We employ expenditure data for districts from the Annual Financial Reports (ST-3) for 1979-80 through 1999-2000. We merge these data by school district for the 21 years analyzed, taking

account of school district consolidations that occurred over the period.[4] For each of the 681 major districts, the approximately 500 expenditure items in the ST-3 are aggregated into 67 groups, which differ by both function (e.g., curriculum development) and type (e.g., instructional salaries). This is done for each of the 21 years analyzed.[5] Based on a preliminary analysis, these 67 groups are aggregated into the categories used in this paper and described in part A of Table 1. Expenditures in each category include all general fund and special aid fund expenditures under the corresponding ST-3 classifications[6] (e.g., salaries, payments for services by Boards of Cooperative Educational Services (BOCES),[7] equipment, supplies and materials, as well as contractual and other expenses and employee fringe benefits).[8] We have extracted several components of the expenditures categories in part A and separately identified them as noted in part B of Table 1. To make meaningful statements concerning important trends and to minimize possible misinterpretations due to data errors, the individual district data are aggregated to regional or need-resource-category groups.[9]

For purposes of the exploratory fiscal stress analysis in this paper, we examined changes in real per-pupil spending for districts with different levels of fund balances at the start of a period of fiscal stress. The section on fiscal stress describes the methodology used in that analysis.

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[4] If two districts consolidated during the period, their expenditures and enrollments are aggregated for the entire period. The 681 major districts (those with 8 or more FTE teaching staff) in 1999-2000 comprise our sample. We employ these 681 districts for the entire 21-year period.

[5] The account codes in the ST-3 have changed over time. We have aggregated the approximately 500 items on the ST-3 into 67 groups employing consistent definitions over the 21 years of our data. Thus, we have modified our aggregations as new account codes have been added or others deleted.

[6] Tuition payments and pre-K expenditures are exceptions to this rule. The former expenditures are shown as a separate category rather than as part of regular and disabilities teaching. Because of our focus on K-12 education, pre-K expenditures are assigned to the undistributed and other category rather than to Teaching - Regular, as is the case with the ST-3.

[7] BOCES are regional educational organizations that contract with school districts to provide various services.

[8] The ST-3 includes information on total general-fund expenditures for employee fringe benefits but does not allocate these expenses to the individual ST-3 classifications. In order to calculate total expenditures by category, all fringe benefits are allocated to the expenditure categories based upon the proportion of total salaries attributable to that category. The assumption is that expenses for fringe benefits are proportional to employees' monetary salaries.

[9] Several SED staff familiar with the reporting and use of the ST-3 data and first-hand accounts from school district personnel made us sensitive to the potential for reporting errors in the data, which is unaudited. These errors result from mistakes in filling out forms, mistakes in coding the data as well as strategic behavior and unintended differences in judgments when classifying expenditures. While data errors are possible for individual items in particular districts, we believe that the process of aggregation diminishes the effect that such errors have on our conclusions.

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III. Expenditures, Inflation and Enrollments

School districts in New York State have substantially increased expenditures over the 1980-2000 period. This is true regardless of how changes in expenditures are measured--in nominal, real, or real per pupil terms. While most of the analysis in the remainder of this paper is based on real expenditures per pupil, both nominal and real expenditure trends are important in understanding where the additional money spent on education has gone.

As shown in Figure 2, total current (nominal) expenditures for the 681 major school districts more than tripled during this 21-year period, from $9.3 billion to over $31.6 billion. Expenditures increased at an average annual growth rate of 6.3 percent.[10] Growth was very strong during the middle 1980s, averaging 7.8 percent, but tailed off to 4.6 percent per year from 1989 to 1997 when it increased to 6.6 percent until 2000. Overall, and in each of the periods, New York state and local school districts have allocated substantial resources to K-12 education. However, neither students nor school districts are better off by the full amount of the nominal increase in expenditures. Although nominal expenditures grew by over $22 billion ($31.6 billion less $9.3 billion), real expenditures increased by only $11.6 billion ($31.6 billion less $20.0 billion), so that 58 percent of the nominal increase was necessary just to keep pace with inflation. If all school districts increased expenditures in all categories by just the rate of inflation, we could conclude that districts had the ability to purchase the same resources in 2000 as they did in 1980.

We also must account for enrollment changes to understand the changes in the provision of education. Many of the services provided by districts are tied to the number of students being educated. Clearly, some types of expenditures remain fixed for a long time. For example, buildings may be purchased at a particular point in time and associated debt service may be relatively constant for many years. Many other types of expenditures are more variable and can be adjusted more readily to changes in enrollments. As a result, increases in resources per pupil, brought about by either an increase in total resources or a reduction in enrollments, reflect either an increase in the quality or quantity of services for students, or wasteful spending. In either case, it is useful to examine how real expenditures per pupil changed over the period.

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[10] Tables summarizing total nominal expenditures, total real expenditures, real per-pupil expenditures, and enrollment for each year for seven different regions of the state are presented in Appendix Tables A2.a through A2.i.

There are substantial differences in enrollment over time, as shown in Figure 3.[11] In 2000 enrollments were only 0.6 percent lower than in 1980. However, from 1980 to 1989 enrollments declined an average 1.5 percent per year, or a total of slightly less than 13 percent. That trend was reversed in the later two periods when enrollments increased by 1.3 percent per year from 1989-1997, and 0.7 percent per year from 1997-2000, for a total increase from 1989 to 2000 slightly greater than 13 percent.

When the enrollment trends are combined with changes in school spending and inflation we observe different trends in real expenditures per pupil. Rapid increases in education expenditures, resulting from a strong economy, combined with decreasing enrollments from 1980 to 1989 led to an increase in real expenditures per pupil from under $7,000 to $10,000. This reflects a real per-pupil expenditure increase of 4 percent per year. By 1988, the economy had begun to slow, thereby limiting state and local tax revenue growth. For example, state aid to local school districts grew at an annual rate of 4 percent during 1980-89, but that growth fell to 0.3 percent over the 1989-97 period. In 1989-90, statewide enrollments began to increase for the first time in 18 years. These conditions produced a slowdown in the growth of real expenditures per pupil, which averaged only 0.4 percent per year. From 1997 to 2000 the economy had recovered, and real state revenue per pupil increased by $770; $635 of this increase resulted from the implementation of the State-funded school tax relief program (STAR). Even though enrollments continued to rise, real expenditures per pupil grew 3 percent per year. Based on these trends, we divide the 1980 to 2000 period into three sub-periods, two reflecting substantial growth in expenditures per pupil – 1980-1989 and 1997-2000 – and a period of weak growth in per pupil expenditures, 1989-1997. Figure 4 provides a good illustration of how the composition of revenues for K-12 education varied from 1980 to 2000.

There are some interesting differences across regions of the state in the growth and composition of revenues. For example, in 1980 real per pupil revenues in New York City exceeded those in the Rest of the State by more than $200. By 2000, the City trailed the Rest of the State by over $2,600 per pupil. Tables 3 and 4 provide insights into the factors that led to this substantial

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[11] We measure student enrollment by pre K-12 fall enrollment, where pre-kindergarten and half-day kindergarten students are weighted .5 FTE and all other students are weighted 1.0 FTE. There are a variety of alternative measures that take into account attendance, student characteristics such as student disabilities, and the double counting associated with districts paying tuition to send students to other districts or facilities. Using such measures could affect the outcome of some of our analysis. While such count measures make an attempt to take into account differences in the relative needs of districts, we are not convinced that they do so accurately or completely. Many states differentially account for students with disabilities, many researchers believe that other student characteristics, e.g., poverty, also affect the unit cost of education. However, there is no agreement on the appropriate weightings to be used.

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change. Table 3 shows the ratio of revenues and enrollments in New York City to those in the Rest of the State. In the 1979-80 school year New York City received 3 percent more revenue per pupil than the Rest of the State (1.03). That ratio fell steadily until 1997 to 0.78, but it increased between 1997 and 2000.

These changes are also reflected in the first row of Table 4, which shows the average annual change in real per pupil revenue for New York City and the Rest of the State. Until 1997 real per pupil increases in the Rest of the State substantially outpaced those in New York City. From 1997 to 2000 the reverse has been the case. What has led to these outcomes? Real per-pupil revenues can change because of changes in real revenues or changes in enrollment. Changes in real revenues could result from changes in federal, state, or local source revenues. The remainder of Tables 3 and 4 help us understand the source of the change in real per pupil revenue across regions.

Over most of the 1980 to 2000 period, New York City lost ground relative to the Rest of State in real per-pupil revenues because of enrollment changes, not due to changes in real revenues. In 1980 New York City received 51 percent as much revenue as the Rest of the State (Table 3, 2nd row). That figure declined only modestly until 1997. However, in 1980 New York City had 49 percent as many students as the Rest of the State, but that figure steadily grew to 62 percent in 1997. As Table 4 shows, New York City experienced annual enrollment growth that outpaced the Rest of the State until 1997.

Although total real revenues did not change very much over the 1980 to 2000 period, the individual components of revenue do show some remarkable differences. In 1980, local source revenues per pupil in New York City were 8 percent higher than in the Rest of the State (Table 3, 2nd panel). That changed dramatically so that by 1997 per-pupil local revenues in New York City were 35 percent below the Rest of the State. This decline reflects both the failure of local revenues to keep pace with enrollment increases and the relatively larger increases in local revenues for the Rest of the State. For example, over the 1980-1989 period, local per-pupil revenues in New York City increased $41 per year compared to $217 in the Rest of the State (Table 4, 2nd panel). New York City's real local revenues grew at 0.8 percent at the same time enrollments essentially were flat. In the Rest of the State real revenues from local sources grew 2.3 percent per year and enrollments declined 2.2 percent per year. A similar explanation holds for the 1989 to 1997 period.

From 1980 to 1997 state source revenues increased real per-pupil revenues at a slightly higher rate in New York City than the Rest of the State but the difference did not nearly offset the discrepancies in local revenues. For example, from 1980 to 1989, State revenue per pupil increased 5.9 percent per year in New York City and 5.5 percent per year in the Rest of the State. From 1989 to 1997, New York City real per-pupil state revenue was essentially flat (0.4 percent decrease per year) and the Rest of the State declined 1.2 percent per year. Thus, from 1980 to 1997 New York City fell behind the Rest of the State in real revenues per pupil both as a result of lower growth in local revenues and higher enrollment growth.

From 1997 to 2000 the revenue patterns changed substantially. Total revenues per pupil increased much more quickly in New York City ($409 per pupil per year) than in the Rest of the State ($175 per pupil per year). Since enrollments did not change very much in either region, the differential reflects changes in revenues. The revenue differential results from a dramatic increase in local revenues for New York City combined with a decrease in local revenues in the Rest of the State. Taken together these exceed a shift in state revenues that advantaged the Rest of the State. The shift in State revenues reflects the implementation of STAR that provided a much greater increase in State source revenue for districts in the Rest of the State than for New York City.

The relative importance of the changes in enrollments and local revenues in explaining the decline from 1980 to 2000 in New York City's local revenue per pupil compared to that in the Rest of the State (i.e., the fall from being 8 percent higher to being 21 percent below) can be inferred using information provided in Table 3. If the increase in local source revenue for New York City had kept pace with the 1.9 percent average annual growth rate experienced in the Rest of the State, the local revenue ratio in 2000 would have remained at 0.53 rather than its actual value of 0.48. This, in conjunction with maintaining increases consistent with the increase in the enrollment ratio from 0.49 to 0.61, would have implied that local revenues per pupil at the end of the period would have needed to increase to 0.87 rather than their actual value of 0.79. Starting with local revenues per pupil in New York City in 1980 at 8 percent above the Rest of the State, the enrollment change alone would have resulted in local revenue per pupil for New York City in 2000 being 13 percent below the Rest of the State. Thus, roughly three-quarters of the relative change in local revenues per pupil over the 21-year period was due to differences in the rates of enrollment growth.

Although this analysis suggests that inability or unwillingness of New York City to keep pace with enrollment changes and, to a lesser degree, increases in local revenue for the Rest of the

State are responsible for the large relative change in revenues per pupil for the two regions, we have not accounted for any changes in the underlying fiscal capacity of each region to generate additional local revenue or, in particular, why such changes might or might not be related to differences in enrollment growth.

Even though the gap between real revenue per pupil in New York City and the Rest of the State grew substantially over the 1980 to 2000 period, both regions had substantial absolute growth. New York City real expenditures per pupil increased by nearly 40 percent; the Rest of the State experienced real per pupil revenue growth of nearly 70 percent. State and local governments have devoted substantial additional resources to children in New York public elementary and secondary schools. How was that money employed?

IV. The Composition of Expenditure Increases

How have the new dollars been allocated across various categories of expenditures and how do these new expenditures compare to historical spending patterns? We look at the increase in real per-pupil expenditures from 1980 to 2000, as well as for the three periods 1980 to 1989, 1989 to 1997 and 1997 to 2000. We analyze these changes first for the State as a whole. We then examine how expenditures have changed for various regions.

New York State

Most categories of expenditures also experienced substantial growth from 1980 to 2000. Table 5 shows real per-pupil expenditures for each of the expenditure categories. Table 6 provides a better sense of the absolute and relative growth of various types of expenditures. It depicts how school district spending was allocated across expenditure categories in 1980 (column 1), how the increase in real per-pupil spending which occurred in each of the time periods was allocated in dollar terms (columns 2, 3 and 4) and as a percentage of the total real per pupil increase (columns 5, 6 and 7), and finally how the share of total spending in 2000 was allocated. For much of our discussion, we will focus on how the new dollars were apportioned across expenditure categories in the three periods (columns 5, 6 and 7).

During 1980-89 school districts in New York spent an additional $326 dollars per pupil per year. This figure decreased to $36 per pupil per year during the 1989-97 period, but rebounded to $321 for the 1997-2000 period. Thus, as has been described earlier, the growth in real expenditures per pupil is quite different during the middle period than in the earlier or later periods. More interesting is how the expenditure patterns have changed in each of these periods.

Regular and special education. A striking story in examining expenditure patterns is the reduction in the share of spending attributable to regular teaching contrasted to the substantial increase in the share for teaching students with disabilities.[12] In 1980 spending on regular education teaching accounted for 53.7 percent of all expenditures and spending on teaching students with disabilities consumed 5.3 percent. By 2000, expenditures for regular education teaching had decreased to 47.5 percent of the budget and special education teaching had increased its share to 14.6. In order to achieve these changes, expenditure patterns for the additional money added to the system during each of the periods must have been dramatically different than what existed in 1980. Although regular teaching accounted for 53.7 percent of all expenditures in 1980, it received only 37.5 percent of the additional real expenditures per pupil between 1980 and 2000. Contrast this with expenditures for teaching students with disabilities, where the original share was 5.3 percent, and the share of the change in real per-pupil expenditure was 27.4 percent between 1980 and 2000.[13] Teaching students with disabilities accounted for a smaller share of the additional real per-pupil spending that occurred between 1997 and 2000 than in prior periods (20.4 percent, v. 26.0 and 104.1), this share is still substantially above the average in 2000 (14.6 percent), suggesting that special education expenditure growth still is outpacing the remainder of the budget. This figure actually understates the share of the total increase going to programs for students with disabilities. Administrative and pupil personnel expenses associated with these programs cannot be separately identified but are embedded in the central administration and pupil personnel categories.

Given the implementation of Public Law 94-142, the Education for All Handicapped Children Act (currently Individuals with Disabilities Education Act) mandating free and appropriate education of all students with disabilities in the least restrictive environment during the 1980s, it is not surprising that special education expenditures grew dramatically during this period. At the same time, changes in accountability systems and raised standards for all students have a disproportionate impact on students with disabilities since they have farther to go and greater difficulty getting there than non-disabled students. Addressing these new requirements is generally going to be more expensive for students who require smaller class sizes and more

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[12] The category Teaching- Disabilities represents programs for children with disabilities, excluding tuition payments. This category does not reflect services provided to special education students in general classrooms. Because it also excludes non-teaching services such as pupil personnel and transportation it underestimates the resources allocated to special education students.

[13] This highlights an important point. Many analysts comparing the 1980 total share (53.7) to the 2000 total share (47.5) would suggest that regular teaching has changed little over this 21-year period. However, to reduce the share of

intensive services. However, it is remarkable that this growth commanded such a large portion of all additional real expenditures per pupil up to 2000. Much of this growth is attributable to a substantial increase in the classification of special education students, especially among the learning disabled category.[14] This discussion points to the need for more research that examines the balance between special and general education funding.

Fringe Benefits. Trends in the expenditures for the various fringe benefits differed greatly. As is a familiar story in most organizations that rely heavily on insured labor, expenditures for health benefits exploded during this period. In education, expenditures on health benefits constitute the fastest growing area of the budget, having increased by nearly 400 percent in real per-pupil terms over the 1980 to 2000 period. Expenditures for health benefits rose from 2.0 percent of total expenditures in 1980 to 6.3 percent in 2000. This occurred because health care accounted for nearly 12 percent of the increased spending from 1980 to 2000.

The increase in expenditures for health benefits contrasts sharply with the 82 percent reduction in real per-pupil expenditures on retirement benefits from 1980 to 2000. On average school districts reduced their real per-pupil expenditures for retirement by over $650 during the 1980 to 2000 period. About half of that reduction occurred between 1996 and 2000, due to the large run up in the stock market and changes made to the accrual methodology for defined benefit plans. Invested retirement funds had substantial market gains. Thus, the annual financial obligation of contributors to the system was reduced substantially. Given the more recent downward trend in stock market performance, it is clear that school districts will need to substantially increase their contributions to the retirement system in the next few years to maintain current levels, placing additional pressure on the remainder of their budgets.

Budgetary Discretion. Good financial managers use budgetary discretion to accommodate unexpected or temporary changes in revenues and expenditures. Prudent managers can employ fund balances to help smooth out fluctuations in revenue streams, e.g., the use of so-called rainy day funds. Some expenditure categories represent commitments that cannot be altered without substantial consequences, e.g., debt payments. Other expenditures can be deferred or reduced over short periods of time, e.g., operations and maintenance. Changing expenditures in any of these areas has consequences for the services provided by school districts. It is useful to examine

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spending from 53.7 to 47.5 requires that regular teaching receive only 37.5 percent of all new dollars allocated over this 21-year period. This represents a substantial reduction.

[14] For a detailed analysis of these trends through 1994, see Lankford and Wyckoff (1996).

the ways that budget managers employ discretion, both during periods of fiscal stress and when budgets are more flush.

For example, Table 4 indicates that as expenditure growth slows, expenditures on the teaching-disabled-students category occupy an increasing share of the additional expenditures. Although spending for teaching students with disabilities increased much less quickly in absolute terms from 1989 to 1997 than during the other periods ($37 per pupil per year v. $85 and $65), its share of the increase in real per-pupil spending was much higher when expenditure growth was small than when it was larger. For example, from 1980 to 1989 teaching students with disabilities accounted for 26 percent of the increase in real per-pupil expenditures when real per pupil spending increased by 4 percent per year. However, from 1989 to 1997 teaching students with disabilities accounted for over 100 percent of the 0.4 percent increase in real expenditures per pupil per year. In this way, spending on teaching students with disabilities crowds out spending on many other categories of the budget. Given the way that school districts interpret the requirements of PL92-142, it is not surprising that this category is less responsive to economic changes than are other areas of the budget.

A similar pattern exists for tuition, debt payments, payments for BOCES services and health care expenditures. Their share of the change is much greater during periods of fiscal stress than when additional resources are more readily available. In most instances districts have made budget commitments for these categories through long-term agreements that are difficult to adjust. In contrast, the expenditures for operations and maintenance tend to be crowded out most when resources are constrained. The declining share of regular teaching is less obvious and also may relate to changing student and teacher demographics. The mix of students may well be shifting between regular and special education. Also, total expenditures on regular education may fall as a result of the replacement of more highly compensated retiring teachers with novice teachers. Finally, as discussed above, there is evidence that district expenditures do not keep pace with enrollment changes. Thus when enrollments are increasing, as they were during the 1989-97 period, we might expect resources allocated on a per-pupil basis to fall.

Expenditures for debt show two very different patterns. Total expenditures for debt fell during the 1980-89 period, but rose substantially between 1989-2000. An analysis of the trend data shows that debt expenditures mirrored the pattern of enrollments, decreasing throughout the early 1980s and beginning to increase in 1987-88. Districts frequently must respond to changing enrollments by adding classrooms or new buildings. Increasing enrollments during a period of modest real revenue increases puts additional stress on district finances.

Expenditure Patterns by Type of District

Student needs, school district resources and geography are central to much of the discussion regarding education finance issues in New York. We disaggregate the statewide results first into seven regions based on a combination of regional location and population density. These seven regions are New York City, the Big Four districts (Buffalo, Rochester, Syracuse and Yonkers), downstate small-city districts, downstate suburban districts, upstate small-city districts, upstate suburban districts and rural districts.[15] Next we examine expenditure growth using the New York State Education Department's six Need-Resource Categories (NRC). These categories attempt to account for both the needs of students in the districts and the districts' ability to finance these needs.[16] The NRC includes six need categories: New York City, the Big Four districts, high need to resource urban or suburban districts, high need to resource rural districts, average need to resource districts and low need to resource districts. Finally, we examine spending patterns by the magnitude of enrollment changes.

Geography and Population Density. Expenditure patterns in New York City are often different from other parts of New York and particularly from its downstate neighbors. For example, from 1980-1997 students in regular teaching assignments (as opposed to those in disabled teaching assignments) were particularly hard hit in New York City. From 1980 to 1989 per-pupil real expenditures on regular classrooms grew about half as fast or less compared to any other region of the state (see Table 7). From 1989 to 1997, New York City actually experienced a decrease in real spending per pupil for regular teaching. Stated differently, in 1980 New York City allocated 54 percent of all expenditures to regular teaching. Of the additional $1,744 in real per-pupil expenditures New York City made from 1980 to 1997, it allotted only 22 percent to this category (Appendix, Table A4b). Expenditure patterns in most other areas of New York State differed markedly. In the Rest of the State, real per-pupil expenditures from 1980-97 increased by $4,101, with 40 percent of this increase allocated to so-called regular teaching (Appendix Table A4c). These patterns reversed during the 1997-00 period, with New York City allocating 55 percent of additional expenditures per pupil to regular teaching and the rest of the state allocating just 12 percent.

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[15] We have used the New York State Education Department set code definitions for these groups.

[16] For a more complete discussion of the NRC, see http://www.emsc.nysed.gov/repcrd399/similar.html#District

Teaching students with disabilities experienced substantial growth across all regions of the State. Growth rates in real expenditures per pupil were greatest during 1980-1989 when PL 94-142 was being implemented. For example, New York City allocated a remarkable 64 percent of its additional real per-pupil spending during 1980-1997 to teaching students with disabilities. This contrasts with the 22 percent share allocated to regular instruction described above. However, these trends reversed during the 1997 to 2000 period when teaching students with disabilities received 17 percent of the additional expenditures per pupil and regular instruction was allocated 55 percent of new per pupil revenues.

The share of the additional expenditures allocated to teaching students with disabilities is lower in the other regions, though real per-pupil spending for teaching students with disabilities increased in every region in every period. No other region allocated more than 32 percent of the increase in real per-pupil spending to this category. We believe this occurred for two reasons. First, New York City had a smaller growth in overall expenditures, but its growth in teaching students with disabilities substantially exceeded growth in this area in other parts of the state. Second, the growth rate of expenditures for teaching students with disabilities is dramatically slowing in New York City, due in part to efforts to mainstream students with disabilities to general education. During the 1997-2000 period the City spent less than 17 percent of its additional real per-pupil expenditures in this way.

Substantial differences exist between regions in the size and allocation of new per-pupil expenditures over the 1980-2000 period. The most notable regional differences are between New York City and the other downstate districts. Students without disabilities in New York City received a substantially smaller increase in per pupil resources, relative to the increases in other regions of the State. However, the impact of substantially increased expenditures on students with disabilities affected all areas of the state.

Need Resource Categories. We expect that differences among districts in their expenditure needs and their relative abilities to financially support those needs may lead to varying expenditure levels and patterns. Table 8 shows expenditure growth rates across expenditure categories and time for districts aggregated by the New York State Education Department's need-resource categories (NRC). There are differences across need-resource categories, but the differences are not those we expected. For example, the districts with the greatest rate of growth in expenditures per pupil from 1997-2000 are the Big Five districts and the high NRC rural

districts. The smallest growth rates are for the low NRC districts. We expected just the opposite.[17]

The difference appears to result from differential changes in enrollment. High NRC rural districts were the only group to experience a decline in enrollment from 1997-2000; the Big Four and New York City had the smallest enrollment increases during this period. In contrast, enrollments in low NRC districts increased nearly three times more than in any other region. Thus it appears that changes in enrollment have a powerful effect on changes in expenditures per pupil. We examine this relationship explicitly in the next section.

Changes in Enrollment. As suggested above, changes in enrollments may have important effects on school district total spending and spending per pupil. Figure 3 suggests that, in the aggregate, expenditures per pupil increase dramatically when enrollments are falling, but the rate of increase slows substantially during periods of enrollment growth. This pattern holds when we compare districts with different patterns of enrollment change. In general, districts where enrollments are increasing the least have expenditures per pupil that increase the most. Likewise, districts where enrollments increase most rapidly also experience the smallest growth in expenditures per pupil.[18] This pattern is evident when comparing high, medium and low enrollment growth districts within each period, as shown in Table 9, columns 2 through 4. In every case, higher enrollment growth districts had expenditures per pupil that grew less rapidly. It is also universally the case when comparisons are made within an enrollment category across periods. For example, the enrollment growth labeled high in 1980-89 was less than that of 1997-2000, but this was less than that of 1989-97.

We can imagine a number of budgetary behaviors that lead to this outcome. We gain more insight to the process by examining how districts with varying enrollment growth patterns altered nominal expenditures. Columns 5 through 7 of Table 9 show that districts with higher enrollment growth experienced larger growth in nominal expenditures than did districts with lower enrollment growth. Enrollment increases lead to increased spending, though by less than what is necessary to maintain constant expenditures per pupil. In some cases, districts appear to make only very small spending adjustments to increased enrollments. Without more information we do not know if high enrollment growth districts eventually "catch up". That is, do the differences we observe in expenditures per pupil between high and low enrollment growth districts diminish over

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[17] Expenditures across various categories are generally consistent with this unexpected result and, in general, are unremarkable.

[18] This is generally true for most categories of expenditures as well.

time? Or do they reflect permanent changes in the resources available to students? Also, it is not clear to what extent falling expenditures per pupil reflect real decreases in educational resources to students. These are potentially very important issues, but require more detailed analysis that goes beyond the scope of this condition report.

V. School District Response to Fiscal Stress

In this section we are concerned with "fiscal stress" and how school districts respond to this stress. Ultimately, we are interested in how districts change their education spending and policies in response to fiscal stress, and how this may affect the education children receive. The work described in this section is exploratory and does not answer these questions, but it is illuminating and raises important issues worth examining more rigorously and in more detail.

What is fiscal stress and what kinds of stress are there? While there is no single definition of fiscal stress, researchers and practitioners often distinguish between short-term or cyclical forms of fiscal difficulty, and longer-term or structural forms of fiscal difficulty. Katharine Bradbury (1982), for example, distinguished between "budgetary fiscal distress" – difficulty in balancing the budget – and "citizen fiscal distress" – when citizens "can't obtain a 'reasonable' level of services at a 'reasonable' sacrifice." The International City/County Management Association differentiates between "budgetary solvency" or "a government's ability to generate enough revenues over its normal budgetary period to meet its expenditures and not incur deficits," and "service-level solvency," or "a government's ability to provide services at the level and quality that are required for the health, safety and welfare of the community and that its citizens desire." (Groves and Valente, 1994).

Budgetary stress often is the result of cyclical forces, such as recessions, which can generate relatively brief but sharp deterioration in a government's fiscal condition. Recessions can affect the finances of school districts directly through declines in economically sensitive local revenue sources like sales taxes, and indirectly through declines in intergovernmental revenue, particularly declines in aid from the state, which in turn relies heavily on revenue sources highly sensitive to cyclical economic changes.

Changes in economically sensitive local revenue probably play relatively little role in recession-related fiscal stress in most school districts – revenue from local non-property taxes constitutes only one percent of total revenue in the typical New York State school district. Local property

taxes, which account for approximately 90 percent of school district local revenue outside New York City, tend to be relatively stable during recessions. This is due, in part, because tax bases are set administratively through the assessment process and do not change as rapidly as underlying property values, and in part because property values may not change rapidly in response to recessions. Changes in state aid, in contrast, appear to play a large role in recession-related school district stress.[19]

Longer-term stress – difficulty in meeting citizens' desires in some sense – may result from a variety of adverse factors or trends. For example, some city school districts may find it difficult to finance desired services due to long-term tax-base deterioration resulting from an exodus of manufacturing and commercial businesses, flight of middle income families to suburbs or for a variety of other reasons.

Fiscal stress can also be exacerbated by poor financial management practices. School districts that do not employ prudent financial practices are more likely to suffer ill effects during either short-term cyclical economic downturns or longer-term deterioration of the economic base. Typically, both short- and long-term stress is beyond the direct control of most school districts. However, how school districts anticipate and react to economically stressful periods is not. Fiscal stress is of interest for a variety of reasons; ultimately we are interested in stress to determine what effect it has on the education of students.

We are interested in how school districts respond to fiscal stress – how do their expenditure patterns change, are different districts affected differently, how long do changes persist, and how do fiscal stress and district response affect resources available for children's education? We are interested both in budgetary stress and longer-term stress. However, for pragmatic reasons, we focus here on budgetary stress – the ST-3 database we use includes very strong financial measures but relatively little information to measure or contribute to our understanding of longer-term stress. However, longer-term stress is currently of particular interest, because the 2001 recession and associated financial market declines have caused sharp declines in state revenue, which in turn is likely to contribute to a new period of fiscal stress for school districts that may last several years.

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[19] Outside NYC, property taxes were about 90 percent of local revenue in every year from 1980-2000, and local revenue from non-property taxes was 1 percent of total revenue in every year.

In the analysis outlined in Section IV, we described the period from 1989 to 1997 as a period of fiscal stress for school districts in New York. This period began with a recession in New York that was particularly deep, resulted in severe fiscal problems for the state government and led to sharp cuts in state aid to school districts. As we noted earlier, it was a period of very restrained spending growth for school districts.

Figure 5 shows the year-to-year change in real per-pupil expenditures and state aid in the years leading up to and immediately following the recession. As the figure shows, after several years of rapid growth in state aid, with the onset of state fiscal problems the state cut school aid sharply in 1990. Spending increased somewhat in 1991, but aid was cut sharply again in 1992, before returning, slowly, to a pattern of relatively small changes in aid. The 1990 and 1992 state aid cuts were large relative to school expenditures and appear to have contributed to stress at the local level. School district expenditures generally mirrored the pattern of state aid changes, although spending changes were not as large or as volatile as changes in aid.

How did school districts respond to this fiscal stress, and did different kinds of school districts respond differently? We are particularly interested in whether some districts were able to cushion the cuts and ride out the crisis with less difficulty than others. School districts have many different methods they might use to mitigate the impact of recession-related stress and maintain relatively stable basic educational services. They might, for example, draw down fund balances or cash balances to finance current spending, they might defer some non-essential expenditures such as capital and possibly maintenance, they might defer payment of some expenses, allowing their accounts payable to rise or they might accelerate revenue, for example, by attempting to collect unpaid taxes more aggressively.[20] Districts unable or unwilling to do these things might resort to tax increases or cuts in core teaching expenditures.

In practice, districts will likely pursue several means to alleviate stress. Based on exploratory analysis of the data, it is clear that many districts significantly vary their fund balances and cash balances in periods of fiscal stress. For example, unrestricted cash balances fell sharply in 1990 in almost all regions of the state – often by more than $100 per pupil – and fund balances also fell often. By contrast, increases in accounts payable generally were small and rare – often amounting to no more than $15 per pupil – and there was no obvious pattern for the state as a

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[20] Technically, some of these responses may overlap. For example districts that allow their accounts payables to rise may see this rise reflected, by definition, in a declining fund balance all else being equal.

whole. Deficit note issuances were rare, perhaps reflecting the potential political stigma deficit notes imply for school financial managers.

Perhaps the most visible and easy-to-measure means for school districts to "smooth" their responses to fiscal stress is to draw down fund balances, and we focused in this paper on how districts with different levels of fund balances responded during 1989 through 1994, when the economy was recovering and finances were under less stress. We computed each school district's unrestricted fund balance as a percentage of total revenue, and divided districts into three groups: those with high fund balances in 1989, those with low fund balances and those with moderate fund balances.[21]

Fund balances tend to vary by district size and region. Small districts tend to have larger fund balances as a percentage of revenue than do larger districts, perhaps because larger districts are able to obtain efficiencies in cash management not available to smaller districts. For example, we observe that large suburban districts on Long Island often have smaller fund balances than do smaller districts in other parts of the state. To address this issue, we grouped districts according to how their fund balances compared to other districts within the same region, rather than comparing them to other districts in the state. We defined "high-fund-balance districts" as those where fund balance as a percentage of revenue was near the 90th percentile in a given year, within plus-or-minus five percentile points. We defined "low-fund-balance districts" as those within plus or minus five percentile points of the 10th percentile and we defined "moderate-fund-balance districts" as those within plus or minus five percentile points of the median. Because the unrestricted fund balance was always reported as zero in New York City and State Education

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21 We used the total unrestricted fund balance (AT091 of the Uniform System of Accounts for School Districts) as our measure of fund balance. This is the sum of the appropriated balance (A910, amount district plans to use in the next school budget) and the unappropriated balance (A911, portion of the unreserved balance the district does not plan to use in the current budget). The total unreserved balance is the correct concept for our purpose here, as it measures the total balance "cushion" available to a district. These balances can and do become quite large, at times for reasons beyond a district's control, such as higher-than-expected revenues or lower-than expected expenses. The Real Property Tax Law (RPTL) limits the size of planned unreserved fund balances in fiscally independent districts by requiring them to appropriate (i.e., plan to spend) unreserved balances in excess of two percent of the operating budget (RPTL Section 1318(1)). The provision generally limits the *projected* total unreserved balance to two percent of the operating budget. If plans are realized, this ordinarily would draw the total unreserved balance down to the two percent limit; unplanned events, however, can lead to the balance being higher or lower. In 2002, the NYS Legislature passed a bill (S.6520-a/A.11024-a) that, if signed, will raise incrementally by 1% annually the cap on unreserved fund balances to four percent of operating budgets by 2004.

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Department staff deemed fund balance information unreliable in other dependent school districts, we excluded all dependent school districts from the analysis. [22]

In this analysis we examine how district finances changed, cumulatively, from 1989 so that we can see not only year-to-year volatility but also whether changes persist over time. We examined these changes in each major region of the state, though the discussion below focuses on downstate suburban districts, which in many ways showed responses typical of districts throughout the state.

Figure 6 shows the cumulative change since 1989 in real per-pupil state aid in low-, moderate- and high-fund-balance districts in the downstate suburbs. Similar to the earlier statewide graph, this figure shows that state aid was cut rather sharply in 1990, rebounded in 1991, was cut sharply again in 1992 and remained close to the 1992 level in 1993 and 1994. (That is, the cumulative reduction since 1989 was about the same in 1993 and 1994 as it was in 1992.) As a point of reference, real per-pupil revenue in downstate suburban districts averaged about $13,750 in 1989, so these changes were quite large – the approximately $600 cut in state aid in 1990 was about 4.4 percent of revenue. Note also that low-, moderate-, and high-fund-balance districts fared similarly during this period; differences in school district response across the three groups are unlikely to reflect differences in state aid cuts.

The three groups of districts, however, behaved differently during this period. Figure 7 shows cumulative change since 1989 in real per-pupil local revenue – mostly property taxes. The three district types raised local revenue during this period, but low-fund-balance districts clearly raised local revenue by quite a bit more than did high-fund-balance districts.

The key question, though, is how did school district spending change in the three district groups? Figure 8 shows the cumulative change in real per-pupil expenditures on regular instruction (Teaching-Regular) during this period. It is immediately obvious that in 1990, and again in 1992, districts with low- and moderate-fund-balances behaved very differently from high-fund-balance districts. High-balance districts actually increased regular instruction spending in 1990, held it relatively constant in 1991 and increased it again in 1992. In contrast, low- and moderate-fund-

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22 As a result, for the state as a whole each fund balance group is composed of 74 school districts. (After excluding dependent school districts, 674 districts remained in the analysis. Each group had approximately 11 percent of these districts – the group's midpoint plus 5 percentage points on either side – or 74 districts.)

balance districts cut real per-pupil spending on regular instruction sharply in both years.[23] Although not confirmed, the data suggest that high-fund-balance districts smoothed their spending during this period by drawing down fund balances – balances that may have been too small to be used for this purpose in other districts.

Is this pattern just a figment of the data for downstate suburban districts? No. Table 10 shows the change from 1989 to 1990 in real per-pupil expenditures on regular instruction in the five regions for which we have reliable fund balance data. In each case, high-fund-balance districts increased expenditures in regular instruction far more, or decreased them far less, than did low-fund-balance districts.

What does this mean for education policy? This work is exploratory and does not tell us why districts behaved the way they did, or even whether their behavior was directly in response to fiscal stress or was simply associated with it. Nevertheless the data are illuminating and show a pattern of response consistent enough across regions to raise important questions. First, more detailed and rigorous analysis would be needed to determine the extent to which these changes reflect direct response to fiscal stress and whether they appear in other time periods as well. Second, more data and more research would be needed to explore how districts respond to periods of longer-term fiscal stress.

If the sharp cuts in regular instruction spending in low-fund-balance districts are in fact a direct response of these districts to fiscal stress, then it is important to know whether these cuts truly reduce educational resources for children, i.e., whether they reflect actual cuts in the quantity or quality of teaching staff, rather than being accounting mechanisms districts devised to defer expenditures but not resources. If these spending cuts reflect resource cuts, it would then be appropriate to examine the role of state policy in influencing school district fund balances.

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[23] Consistent with Figure 8, low-fund-balance districts in the downstate suburban region had substantially greater variance in their regular instruction spending over the 1989 to 1994 period than did high fund balance districts. The standard deviation of year-to-year spending changes in the median high-fund-balance district was $53, while that for the median low-fund-balance district was $158, or about three times as great.

VI. Summary

We have traced the $22 billion increase in school district spending from 1979-80 through 1999-2000. Much of the increase is accounted for by inflation and does not represent an increase in real resources. However, net of inflation, public school districts spent an additional $11.6 billion from 1980 to 2000, reflecting a 60 percent increase in real per-pupil spending. Though the money was used for a variety of purposes, spending on the teaching of students with disabilities stands out as an expenditure category that continues to account for a disproportionate share of additional spending. As school district budgets come under fiscal pressure, as they did in the early 1990s in New York and elsewhere, it appears that budget allocations to special education students continue to grow at only slightly lower rates, with increasing pressure on the remainder of the budget.

Further, when districts experienced sharp and sudden stress, as in the early 1990s, districts with healthy cushions in the form of large fund balances appeared able to weather difficulty without making sharp cuts in teaching expenditures, while districts with low fund balances clearly cut back sharply.

This research raises several issues relevant to policy makers. What is the appropriate balance in funding across a variety of expenditure categories, but especially between special education and regular instruction? This is a difficult issue, but one that is likely to continue to confront federal, state and local policy makers. School districts should be particularly mindful of the difficult fiscal position they currently face and are likely to confront for a few years. The difficult budget picture is compounded by ever rising health care costs and an increased need for contributions to the retirement fund. Although our research on fiscal stress is preliminary, we believe that districts should adopt conservative budgeting practices with prudent fund balances to help smooth out short-term economic cycles. Doing so can have important implications for spending, and thereby, the education that students receive.

There are several issues we would like to pursue further. For example, what accounts for the increase in special education spending? Does this reflect an increase in identified students, increased spending per student, and what role does the State's accountability system play? What is the dynamic relationship between school district expenditures and changes in enrollments? Is there a lagged response to enrollment change, such that per-pupil expenditures eventually "catch

up"? How does what appears to be an inverse relationship between enrollments and expenditures affect the quality of education students receive? Do some expenditure categories benefit more during times of enrollment change, and are the responses symmetric?

We would also like to learn more about the adjustments districts make during times of fiscal stress. Is the pattern we observed in 1990, in which districts with low fund balances cut spending more sharply than did districts with greater cushions, a typical response of school districts to fiscal stress? Does this trend translate into similar deep cuts in real resources available to students and in the quality of education they receive? Do spending cuts made during periods of fiscal stress have permanent effects, and are students in some districts affected more than those in other districts? How do districts cope with expanding enrollments during times of limited revenue growth, such as occurred from 1989 to 1997? What is the variation across districts in ability to tap unreserved fund balances and other sources of revenue during times of fiscal stress?

Understanding basic expenditure patterns is an important first step in addressing these issues. However, further research is clearly needed to connect this understanding to its ultimate impact on students. This research has special relevance now, given the recent recession and the continuing fiscal problems New York State and its local governments face.

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Figures

Figure 1: Real Expenditures per Pupil, United States and New York, 1960-1998

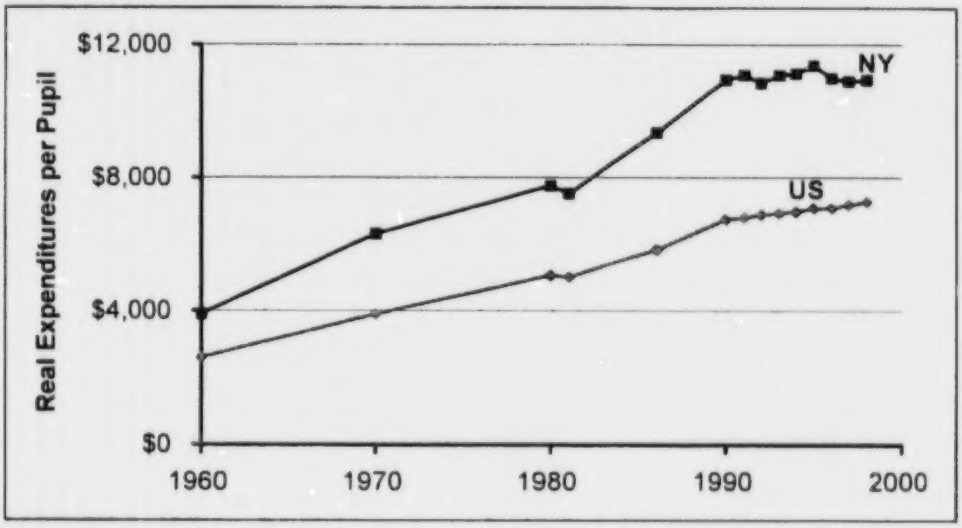


Figure 2: Nominal, Real and Real per Pupil Expenditures, New York State, 1980-2000

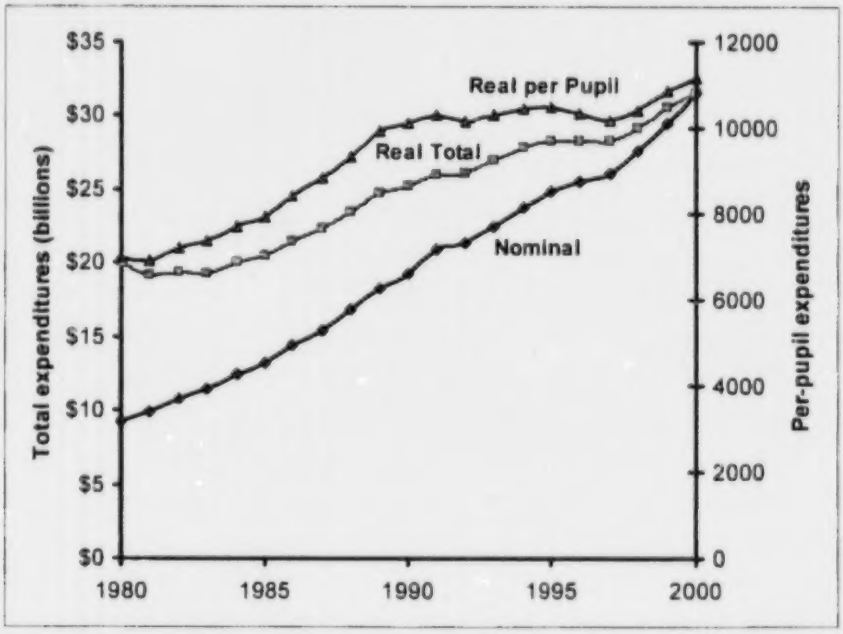


Figure 3: Enrollment and Real Expenditures per Pupil, New York State, 1980-2000

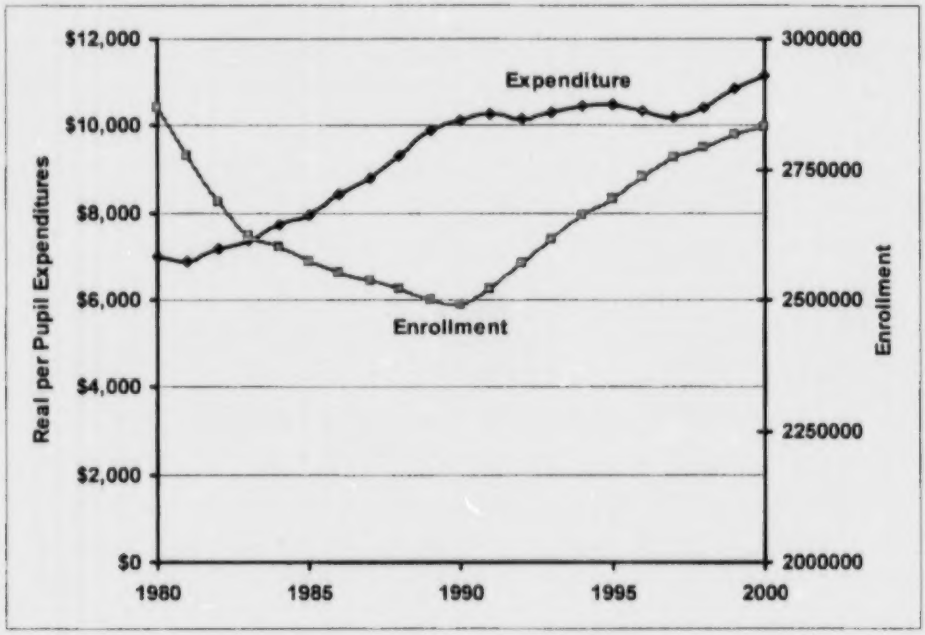


Figure 4: Real Revenues per Pupil by Source, 1980-2000

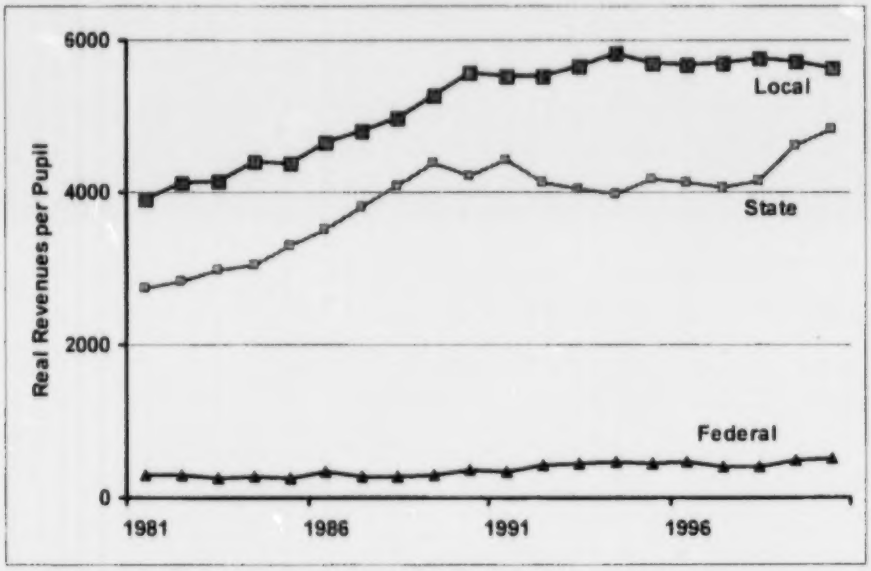


Figure 5

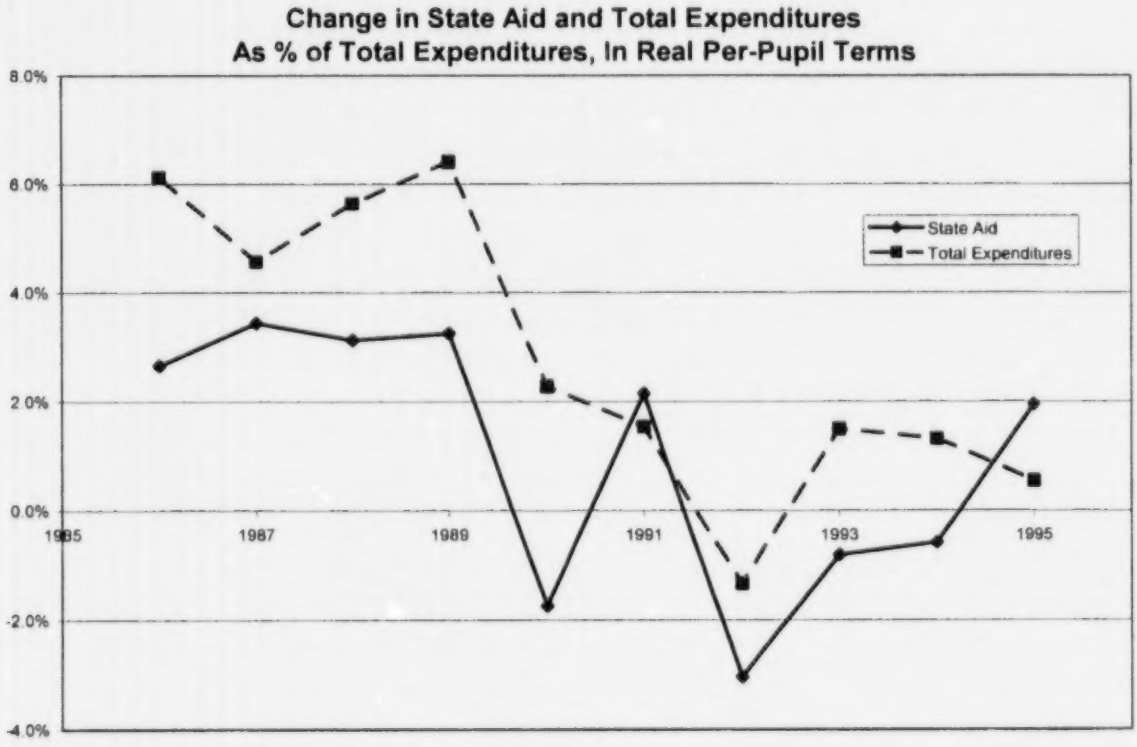

Change in State Aid and Total Expenditures
As % of Total Expenditures, In Real Per-Pupil Terms
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
1985
1987
1989
1991
1993
1995
State Aid
Total Expenditures

Figure 6

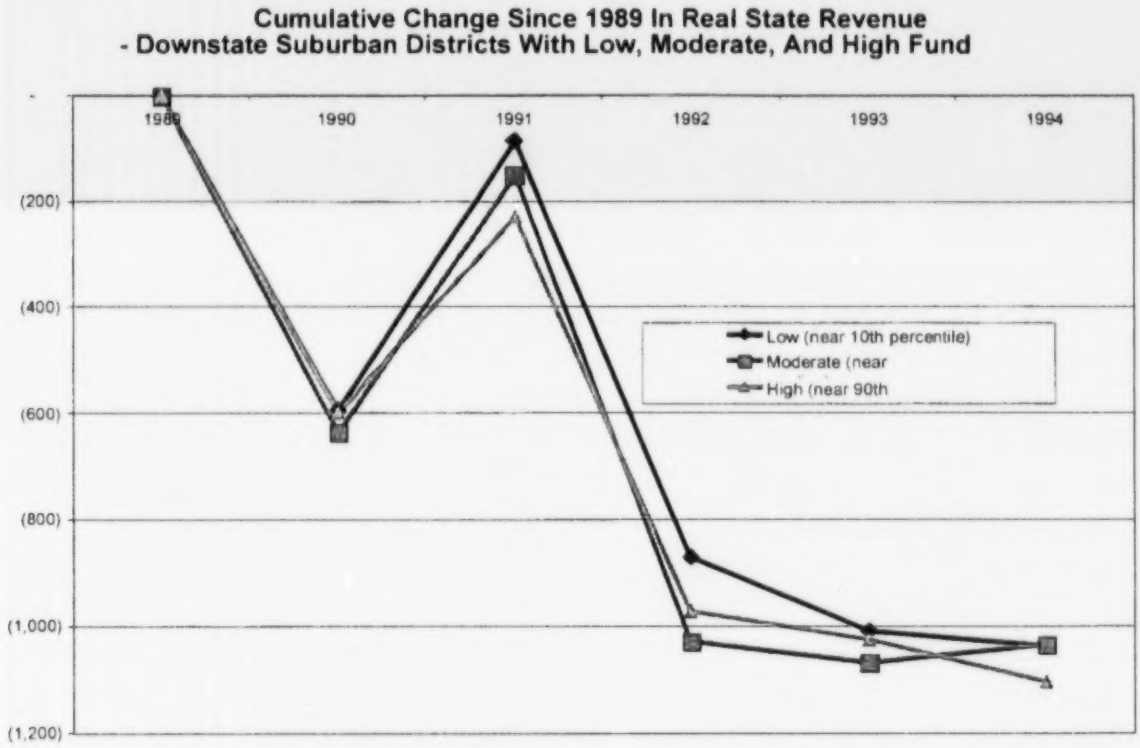

Cumulative Change Since 1989 In Real State Revenue
- Downstate Suburban Districts With Low, Moderate, And High Fund
1989
1990
1991
1992
1993
1994
(200)
(400)
(600)
(800)
(1,000)
(1,200)
Low (near 10th percentile)
Moderate (near
High (near 90th

Figure 7

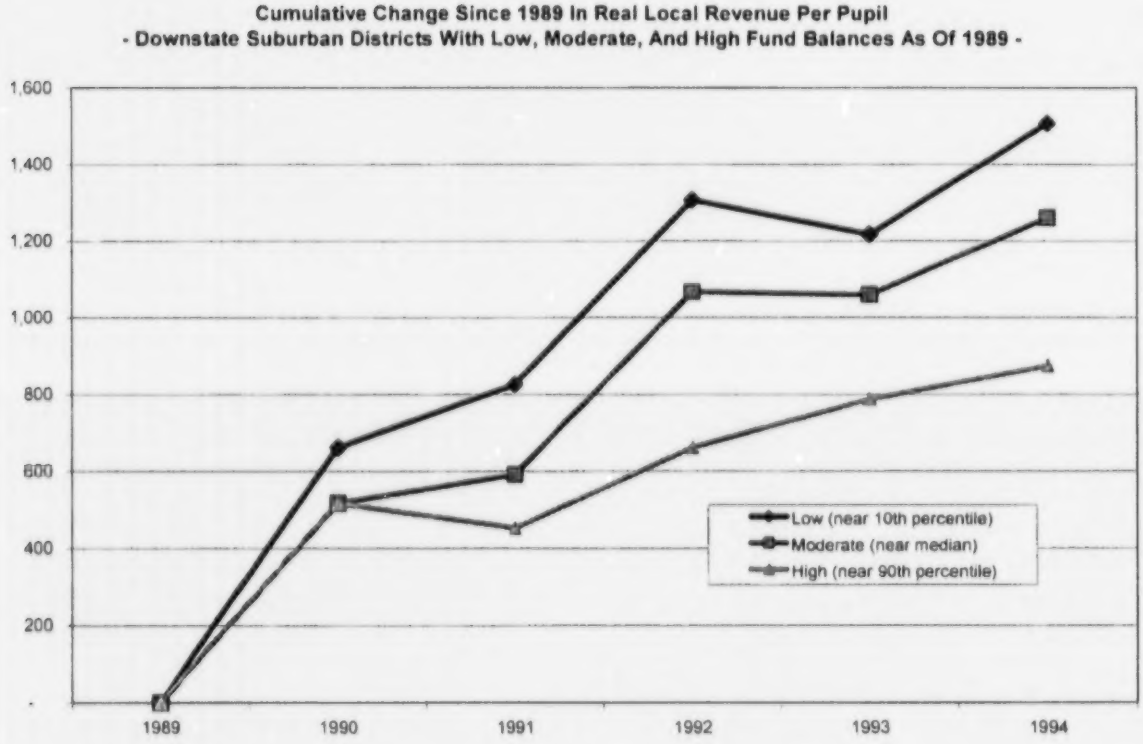
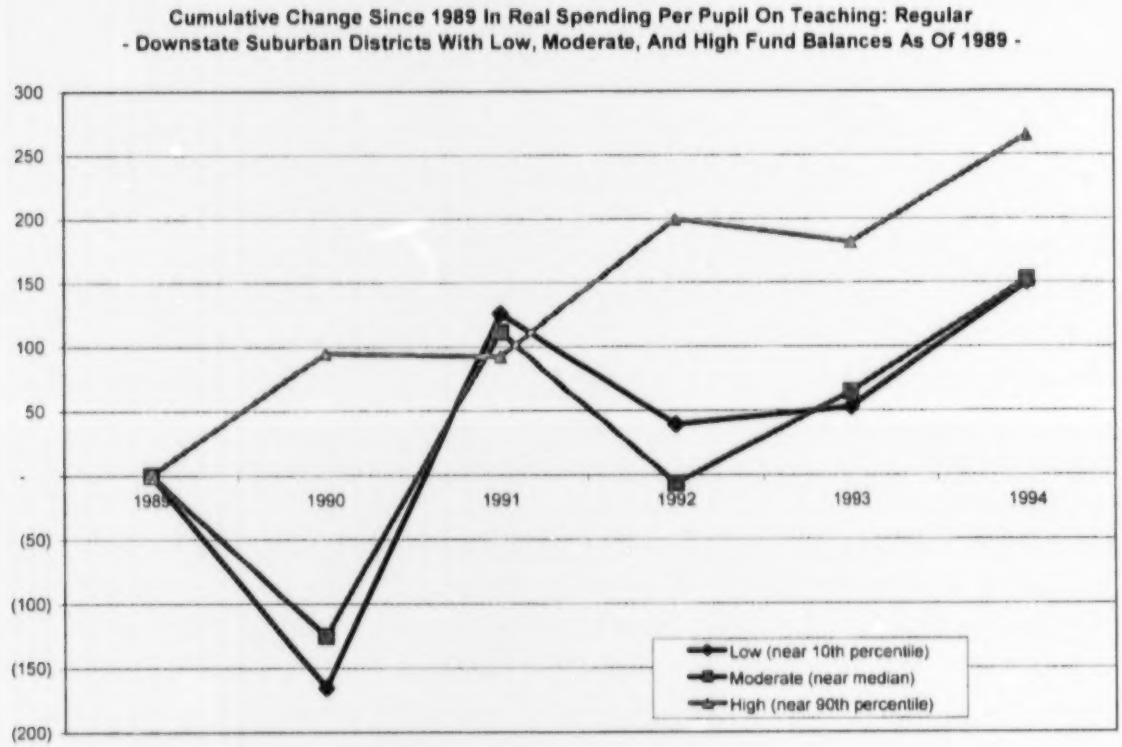

Cumulative Change Since 1989 In Real Local Revenue Per Pupil
- Downstate Suburban Districts With Low, Moderate, And High Fund Balances As Of 1989 -
1,600
1,400
1,200
1,000
800
600
400
200
-
1989
1990
1991
1992
1993
1994
Low (near 10th percentile)
Moderate (near median)
High (near 90th percentile)

Figure 8


Cumulative Change Since 1989 In Real Spending Per Pupil On Teaching: Regular
- Downstate Suburban Districts With Low, Moderate, And High Fund Balances As Of 1989 -
300
250
200
150
100
50
-
(50)
(100)
(150)
(200)
1989
1990
1991
1992
1993
1994
Low (near 10th percentile)
Moderate (near median)
High (near 90th percentile)

Tables

Table 1
Composition of Expenditure Categories

A. Functional Expenditure Categories

CENTRAL ADMINISTRATION ST-3 items: board of education, district clerk, district meeting, chief school administrator, business administration, auditing, treasurer, tax collector, purchasing, fiscal agent fees, legal, personnel, records management, public information, central printing and mailing, central data processing, school census

BUILDING SUPERVISION ST-3 items: supervision - regular school, supervision - special schools, research planning and evaluation

CURRICULUM DEVELOPMENT ST-3 items: curriculum development and supervision

TEACHING - REGULAR ST-3 items: teaching - regular schools (excluding pre-k program and tuition payments), services for pupils with special needs, occupational education, teaching - special schools

TEACHING - DISABILITIES ST-3 items: programs for children with disabilities (excluding tuition payments)

PUPIL PERSONNEL SERVICES ST-3 items: attendance, guidance, health services, diagnostic screening, psychological services, educationally related support services, social work services, pupil personnel services - special schools

OTHER EDUCATIONAL SUPPORT ST-3 items: school library and audiovisual, educational television, computer assisted instruction, in-service training - instruction

OPERATIONS AND MAINTENANCE ST-3 items: operation of plant, maintenance of plant, repair reserve fund expenditures

UNDISTRIBUTED AND OTHER ST-3 items: co-curricular activities, interscholastic athletics, recreation, youth program, civic activities, pre-k education, JTPA - job training, work training, work study, employment preparation education, central storeroom, school association dues, assessment on school property, refund on real property taxes, BOCES administrative charges, unclassified, transfer to school food service fund, transfer to school store fund, transfer to capital fund

TRANSPORTATION ST-3 items: direct transportation services, garage building, contract transportation, public transportation, transportation from BOCES

INSURANCE ST-3 items: unallocated insurance, judgments and claims, transfer to risk retention fund

TUITION ST-3 items: all tuition payments

DEBT SERVICE ST-3 items: principal and interest payments from the general and debt service funds

Table 1 Continued

B. Various Components of Expenditure Categories

TOTAL PAYMENTS TO BOCES ST-3 items: all payments for BOCES services plus BOCES administrative
HEALTH, GENERAL FUND ST-3 item: hospital, medical and dental insurance charges

RETIREMENT, GENERAL FUND ST-3 items: state retirement, teachers' retirement

OTHER FRINGE BENEFITS ST-3 items: social security, workers compensation, life insurance, unemployment, disability, union welfare benefits, other, special fund employee benefits

Table 2: Educational Expenditures, Enrollments and Revenues, All Major Districts

	1979-80	1981-82	1983-84	1985-86	1987-88	1989-90	1991-92	1993-94	1995-96	1996-97	1997-98	1998-99	1999-00
TOTAL EXPENDITURES													
Nominal (millions)	$9,295	$10,819	$12,383	$14,388	$16,840	$19,311	$21,330	$23,771	$25,504	$26,079	$27,616	$29,487	$31,592
annualized rate of change		7.9	7.0	7.8	8.2	7.1	5.1	5.6	3.6	2.3	5.9	6.8	7.1
Real[a] (millions)	$20,002	$19,333	$20,059	$21,496	$23,478	$25,236	$26,078	$27,791	$28,275	$28,246	$29,116	$30,621	$31,592
annualized rate of change		-1.7	1.9	3.5	4.5	3.7	1.7	3.2	0.9	-0.1	3.1	5.2	3.2
Real Per Pupil	$6,976	$7,193	$7,712	$8,427	$9,309	$10,131	$10,150	$10,437	$10,331	$10,191	$10,428	$10,873	$11,155
annualized rate of change		1.5	3.5	4.5	5.1	4.3	0.1	1.4	-0.5	-1.4	2.3	4.3	2.6
ENROLLMENT (thousands)	2,867	2,688	2,601	2,551	2,522	2,491	2,569	2,663	2,737	2,772	2,792	2,816	2,832
annualized rate of change		-3.2	-1.6	-1.0	-0.6	-0.6	1.6	1.8	1.4	1.3	0.7	0.9	0.6
REVENUES (Real[a])													
Local (millions)	$11,213	$11,071	$11,447	$11,867	$12,570	$13,878	$14,211	$15,517	$15,522	$15,828	$16,125	$16,106	$15,981
annualized rate of change		-0.6	1.7	1.8	2.9	5.1	1.2	4.5	0.0	2.0	1.9	-0.1	-0.8
State Revenue (millions)	$7,734	$7,633	$7,898	$8,965	$10,303	$10,501	$10,585	$10,597	$11,294	$11,263	$11,558	$13,018	$13,690
annualized rate of change		-0.7	1.7	6.5	7.2	1.0	0.4	0.1	3.2	-0.3	2.6	12.6	5.2
STAR												$603	$1,191
annualized rate of change													97.5
Federal (millions)	$1,082	$811	$730	$871	$692	$920	$1,072	$1,266	$1,254	$1,132	$1,151	$1,397	$1,426
annualized rate of change		-13.4	-5.2	9.3	-10.9	15.3	8.0	8.7	-0.5	-9.7	1.7	21.4	2.0

[a] Real expenditures expressed in year 2000 dollars

Table 3: Ratio of New York City Revenue and Enrollment to Rest of State, by Source of Revenue, Selected Years

	1979-80	1988-89	1996-97	1999-00
Total Revenues - Ratios				
Revenue-per-pupil	1.03	0.83	0.78	0.85
Revenue	0.51	0.49	0.48	0.52
Enrollment	0.49	0.59	0.62	0.61
Local Revenues - Ratios				
Revenue-per-pupil	1.08	0.78	0.65	0.79
Revenue	0.53	0.46	0.40	0.48
Enrollment	0.49	0.59	0.62	0.61
State Revenues -Ratios				
Revenue-per-pupil	0.80	0.83	0.89	0.85
Revenue	0.39	0.49	0.55	0.52
Enrollment	0.49	0.59	0.62	0.61
Federal Revenues - Ratios				
Revenue-per-pupil	3.44	2.01	2.33	1.99
Revenue	1.68	1.19	1.43	1.21
Enrollment	0.49	0.59	0.62	0.61

Table 4: Change in Real Revenues and Enrollments by Source of Revenue, 1980 -2000

	1980 to 1989		1989 to 1997		1997 to 2000		1980 to 2000	
	New York City	Other Districts	New York City	Other Districts	New York City	Other Districts	New York City	Other Districts
Total Revenues (real)								
Average annual change								
Revenue-per-pupil	$186	$418	-$17	$55	$409	$175	$138	$237
Annualized rates of change								
Revenue-per-pupil	0.024	0.050	-0.002	0.005	0.045	0.016	0.016	0.026
Revenues	0.022	0.026	0.014	0.016	0.051	0.024	0.023	0.022
Enrollment	-0.001	-0.022	0.016	0.011	0.005	0.008	0.007	-0.005
Local Revenues (real)								
Average annual change								
Revenue-per-pupil	$41	$217	-$26	$105	$188	-$154	$36	$116
Annualized rates of change								
Revenue-per-pupil	0.010	0.047	-0.006	0.017	0.042	-0.024	0.008	0.024
Revenues	0.008	0.023	0.010	0.028	0.048	-0.016	0.015	0.019
Enrollment	-0.001	-0.022	0.016	0.011	0.005	0.008	0.007	-0.005
State Revenues (real)								
Average annual change								
Revenue-per-pupil	$175	$200	-$14	-$55	$189	$297	$101	$112
Annualized rates of change								
Revenue-per-pupil	0.059	0.055	-0.004	-0.012	0.048	0.066	0.032	0.029
Revenues	0.058	0.032	0.012	-0.001	0.053	0.075	0.039	0.025
Enrollment	-0.001	-0.022	0.016	0.011	0.005	0.008	0.007	-0.005
Federal Revenues (real)								
Average annual change								
Revenue-per-pupil	-$30	$2	$23	$6	$32	$32	$0	$8
Annualized rates of change								
Revenue-per-pupil	-0.051	0.007	0.043	0.024	0.049	0.105	0.001	0.028
Revenues	-0.052	-0.015	0.060	0.036	0.054	0.115	0.007	0.024
Enrollment	-0.001	-0.022	0.016	0.011	0.005	0.008	0.007	-0.005

Table 5: Real Per Pupil Expenditures by Category 1980-2000, All Major Districts

	1979-80	1981-82	1983-84	1985-86	1987-88	1989-90	1991-92	1993-94	1995-96	1996-97	1997-98	1998-99	1999-00
Central Administration	$199	$222	$251	$283	$316	$349	$337	$338	$330	$325	$338	$365	$378
Building Supervision	$402	$343	$357	$377	$409	$434	$419	$423	$409	$402	$403	$423	$451
Curriculum Development	$30	$33	$38	$45	$52	$66	$51	$51	$44	$49	$50	$56	$61
Teaching, Regular	$3,747	$3,763	$4,005	$4,336	$4,718	$5,056	$5,018	$5,110	$5,019	$4,920	$5,059	$5,193	$5,302
Teaching, Disabilities	$369	$572	$737	$887	$1,038	$1,206	$1,334	$1,406	$1,427	$1,428	$1,493	$1,584	$1,624
Pupil Personnel Services	$250	$232	$249	$292	$362	$407	$384	$389	$378	$374	$360	$369	$337
Other Educational Support	$119	$118	$110	$145	$165	$176	$168	$176	$187	$195	$217	$248	$258
Operations and Maintenance	$727	$781	$781	$807	$867	$951	$893	$909	$888	$875	$862	$909	$907
Undistributed and Other	$185	$174	$243	$268	$308	$306	$275	$269	$268	$264	$265	$312	$381
SUBTOTAL	$6,028	$6,238	$6,770	$7,439	$8,236	$8,949	$8,878	$9,072	$8,950	$8,832	$9,049	$9,459	$9,698
Transportation	$403	$432	$453	$479	$538	$586	$572	$618	$565	$568	$570	$593	$588
Insurance	$29	$23	$20	$46	$59	$54	$61	$59	$54	$45	$40	$40	$38
Tuition	$49	$67	$79	$100	$131	$166	$200	$251	$264	$266	$272	$242	$239
Debt	$466	$433	$390	$363	$345	$376	$438	$438	$499	$480	$498	$539	$591
TOTAL	$6,976	$7,193	$7,712	$8,427	$9,309	$10,131	$10,150	$10,437	$10,331	$10,191	$10,428	$10,873	$11,155
Total Payments to BOCES	$243	$257	$281	$317	$381	$453	$464	$481	$503	$510	$530	$555	$564
Total Salaries	$3,959	$3,920	$4,289	$4,773	$5,341	$6,043	$5,955	$6,026	$5,955	$5,857	$6,043	$6,277	$6,364
Fringe Benefits													
Health, General Fund	$142	$184	$241	$293	$377	$462	$554	$623	$610	$621	$634	$661	$701
Retirement, General Fund	$788	$871	$860	$847	$781	$453	$428	$478	$432	$368	$295	$259	$134
Other	$336	$380	$405	$479	$519	$615	$645	$678	$672	$649	$680	$699	$728
Total Employee Compensation	$5,225	$5,355	$5,796	$6,392	$7,019	$7,572	$7,583	$7,805	$7,669	$7,496	$7,652	$7,895	$7,927

Table 6: Allocation of Expenditure Increase, 1980-2000, All Major Districts

	Share of 1980 total (%)	Annual real per-pupil increase in expenditures[a] ($)			Share of the change (%)			Share of 2000 total (%)
		1980-1989	1989-1997	1997-2000	1980-1989	1989-1997	1997-2000	
Central Administration	2.9	15	-2	17	4.7	-4.5	5.4	3.4
Building Supervision	5.8	3	-4	16	1.0	-9.8	5.0	4.0
Curriculum Development	0.4	3	-1	4	0.9	-2.9	1.2	0.5
Teaching, Regular	53.7	140	-10	127	42.9	29.1	39.6	47.5
Teaching, Disabilities	5.3	85	37	65	26.0	104.1	20.4	14.6
Pupil Personnel Services	3.6	16	-3	-13	4.9	-7.1	-3.9	3.0
Other Educational Support	1.7	6	2	21	1.9	6.4	6.5	2.3
Operations and Maintenance	10.4	25	-10	11	7.7	-27.1	3.3	8.1
Undistributed and Other	2.7	13	-4	39	3.9	-12.1	12.2	3.4
SUBTOTAL	86.4	306	6	289	94.0	17.9	89.9	86.9
Transportation	5.8	18	1	7	5.5	1.5	2.1	5.3
Insurance	0.4	3	-1	-2	0.8	-3.2	-0.6	0.3
Tuition	0.7	11	14	-9	3.5	40.3	-2.8	2.1
Debt	6.7	-12	16	37	-3.8	43.5	11.4	5.3
TOTAL	100.0	326	36	321	100.0	100.0	100.0	100.0
Total Payments to BOCES	3.5	20	11	18	6.1	31.1	5.6	5.1
Total Salaries	56.7	199	13	169	61.3	36.4	52.6	57.1
Fringe Benefits								
Health, General Fund	2.0	32	24	27	9.7	68.0	8.3	6.3
Retirement, General Fund	11.3	-9	-43	-78	-2.7	-119.4	-24.2	1.2
Other	4.8	27	9	26	8.2	25.5	8.1	6.5
Total Employee Compensation	74.9	249	4	144	76.5	10.4	44.7	71.1

Table 7: Annualized Percentage Change in Expenditures per Pupil by Expenditure Category and Region, 1980 to 2000

	New York City	Big Four	Downstate Cities	Downstate Suburbs	Upstate Cities	Upstate Suburbs	Rural	New York State
All Expenditures								
1980-89	2.58	3.71	4.83	5.50	4.44	4.42	4.70	3.97
1989-97	-0.10	0.11	0.01	0.03	1.47	0.96	1.44	0.36
1997-00	5.77	4.58	-0.95	0.30	1.92	1.82	3.00	3.06
1980-00	1.97	2.38	2.00	2.50	2.86	2.63	3.13	2.37
Teaching, Regular								
1980-89	1.78	3.30	4.21	4.50	3.97	4.05	4.10	3.27
1989-97	-0.81	-0.41	-0.43	-0.33	0.79	0.39	0.82	-0.21
1997-00	6.59	2.66	-0.29	-0.65	1.18	0.29	1.13	2.52
1980-00	1.44	1.70	1.65	1.77	2.27	2.00	2.33	1.75
Teaching, Disabilities								
1980-89	13.39	10.26	13.57	12.97	12.62	12.77	14.40	13.26
1989-97	0.71	2.51	2.16	4.06	6.47	5.89	6.72	2.96
1997-00	5.26	4.15	0.13	2.35	4.09	4.53	5.50	4.38
1980-00	6.94	6.18	6.82	7.71	8.83	8.72	9.92	7.69
Operations & Maintenance								
1980-89	3.07	0.59	3.07	4.27	2.86	2.84	2.47	3.06
1989-97	-1.42	-0.52	-1.50	-1.08	-0.54	-0.75	-0.32	-1.05
1997-00	2.82	2.05	-1.84	-0.54	0.21	0.27	1.29	1.21
1980-00	1.21	0.36	0.48	1.38	1.09	1.00	1.17	1.12
Health Care, General Fund								
1980-89	7.68	12.98	16.50	17.56	13.36	13.45	13.11	12.98
1989-97	8.09	4.82	1.25	1.46	5.58	6.04	6.75	4.79
1997-00	4.23	3.75	0.83	2.75	5.65	4.68	4.38	4.10
1980-00	7.32	8.25	7.78	8.62	9.02	9.10	9.20	8.29
Retirement, General Fund								
1980-89	-5.05	-0.80	1.67	1.69	0.59	0.94	0.68	-1.17
1989-97	-5.79	-10.18	-11.52	-8.56	-7.43	-9.50	-8.49	-7.87
1997-00	-27.24	-25.90	-31.33	-32.55	-27.26	-27.78	-25.91	-28.52
1980-00	-9.05	-8.74	-9.32	-8.36	-7.32	-8.10	-7.45	-8.46

Table 8: Annualized Percentage Change in Expenditures per Pupil by Expenditure and Need-Resource Categories, 1980 to 2000

	New York City	Big Four	High NRC Urban/Suburban	High NRC Rural	Average NRC	Low NRC	New York State
All Expenditures							
1980-89	2.58	3.71	4.93	4.71	4.80	5.11	3.97
1989-97	-0.10	0.11	0.92	1.38	0.73	0.02	0.36
1997-00	5.77	4.58	1.93	3.11	1.43	0.15	3.06
1980-00	1.97	2.38	2.86	3.12	2.65	2.30	2.37
Teaching, Regular							
1980-89	1.78	3.30	4.20	4.11	4.23	4.22	3.27
1989-97	-0.81	-0.41	0.35	0.81	0.23	-0.39	-0.21
1997-00	6.59	2.66	1.32	1.51	0.08	-0.80	2.52
1980-00	1.44	1.70	2.21	2.39	1.99	1.60	1.75
Teaching, Disabilities							
1980-89	13.39	10.26	12.16	14.45	13.01	12.57	13.26
1989-97	0.71	2.51	5.73	6.45	5.04	4.18	2.96
1997-00	5.26	4.15	2.54	5.89	3.76	3.30	4.38
1980-00	6.94	6.18	8.08	9.89	8.35	7.74	7.69
Operations & Maintenance							
1980-89	3.07	0.59	3.47	2.58	3.09	4.18	3.06
1989-97	-1.42	-0.52	-0.91	-0.25	-0.81	-1.21	-1.05
1997-00	2.82	2.05	0.44	1.39	0.38	-1.18	1.21
1980-00	1.21	0.36	1.24	1.26	1.11	1.18	1.12
Health Care, General Fund							
1980-89	7.68	12.98	14.83	12.56	15.06	16.96	12.98
1989-97	8.09	4.82	3.93	7.35	4.33	1.52	4.79
1997-00	4.23	3.75	4.26	5.49	4.12	2.82	4.10
1980-00	7.32	8.25	8.75	9.38	8.99	8.40	8.29
Retirement, General Fund							
1980-89	-5.05	-0.80	0.82	0.87	1.22	1.41	-1.17
1989-97	-5.79	-10.18	-7.32	-8.13	-8.91	-9.63	-7.87
1997-00	-27.24	-25.90	-26.13	-27.82	-29.17	-33.08	-28.52
1980-00	-9.05	-8.74	-6.96	-7.59	-8.02	-9.01	-8.46

Table 9: Annual Growth in Total Expenditures, Nominal and Real Per Pupil by Period

Enrollment Growth*	Median District Total Expenditure Annual Growth, by Period (%)					
	Real per Pupil			Nominal		
	1980-89	1989-1997	1997-2000	1980-89	1989-1997	1997-2000
High	4.3	-0.1	0.0	9.5	5.8	5.6
Medium	4.5	0.9	1.7	7.9	4.9	4.7
Low	5.6	2.1	3.8	6.8	4.2	4.4
All	4.7	0.9	1.7	8.1	4.9	4.9

* Districts are divided into high, medium and low enrollment growth to include roughly 25 percent in the high and low growth categories, with the remaining 50 percent in the medium growth category. This implies annual enrollment growth during each period as follows:

Enrollment Growth	1980-89	1989-1997	1997-2000
High	> -1%	> +2%	> +1.7%
Medium	-1% to > -3%	2% to > 0%	1.7% to > -1%
Low	<= -3%	<= 0%	<= -1%

Table 10

Change in Real Per-Pupil Regular-Teaching Expenditures
From 1989 to 1990
(Amounts in 2000 $ Per Pupil)

	Low Balance Districts	High-Balance Districts	High Minus Low
Downstate Cities	(44)	179	224
Downstate Suburbs	(165)	95	260
Upstate Cities	(207)	(41)	166
Upstate Suburbs	(133)	22	155
Rural	57	389	333

Methodological Appendix

Chapter Two of this paper described briefly the method we used to decompose changes in school district spending. The equations below describe this decomposition method in more-formal terms. Equation 1 divides a district's total real per-pupil expenditures in period t, E_t, into its component parts, expenditure categories 1 through n. Expenditures per pupil in category i, $s_t^i(q_t^i / p_t)$, equals the number of input units per pupil, q_t^i / p_t, times a cost per unit, s_t^i.[24] The change in real expenditures per pupil from year 1 to year 2, $E_2 - E_1$, is used to calculate what share each category contributed to the total expenditure increase, as shown in Equation 2. For example, if real per-pupil expenditures increased by $1,000 over the period, and expenditures in category one are up by $200 in real per pupil terms, then category one received a 20 percent share of the total increase. Since the sum of the shares must equal one, this approach allows us to determine the relative contribution of each category to the increase in real per-pupil spending.

$$(1) \quad E_t = s_t^1 \frac{q_t^1}{p_t} + s_t^2 \frac{q_t^2}{p_t} + \ldots + s_t^n \frac{q_t^n}{p_t}$$

$$(2) \quad 1 = \frac{s_2^1 \frac{q_2^1}{p_2} - s_1^1 \frac{q_1^1}{p_1}}{E_2 - E_1} + \frac{s_2^2 \frac{q_2^2}{p_2} - s_1^2 \frac{q_1^2}{p_1}}{E_2 - E_1} + \ldots + \frac{s_2^n \frac{q_2^n}{p_2} - s_1^n \frac{q_1^n}{p_1}}{E_2 - E_1}$$

A comparison of a category's share of the change in real per-pupil spending over the period, e.g., $\frac{s_2 \frac{q_2}{p_2} - s_1 \frac{q_1}{p_1}}{E_2 - E_1}$, to the category's share of expenditures in the starting period, e.g., $\frac{s_1 \frac{q_1}{p_1}}{E_1}$, provides useful insights regarding how the allocation of real expenditures is changing. Examining the change in expenditures is particularly useful in uncovering new and emerging trends in spending behavior.

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[24] Category superscripts are dropped to simplify notation when doing so does not lead to ambiguity.

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